

TRI-14-16

CHWALCZYK'S URANIUM PROSPECT— STOREY'S CREEK (SECOND REPORT)

By **TERENCE D. HUGHES**

Some notes on this prospect were prepared by me on the 26th July last. The prospect was also visited about then and a report prepared by Mr. L. C. Noakes of the Mineral Resources Bureau. At that time very little development work had been undertaken, but a small opening at creek level revealed a fracture zone in the granite, extending almost horizontally and containing some carnotite and torbernite.

Since then another opening has been made in the fracture zone, a few tens of feet lower downstream, and some interesting material revealed. Development work on this prospect is very difficult and several weeks continuous work by three men have not opened up very much of the fracture zone. The eastern bank of Storey's Creek, where the fracture zone outcrops, is very steep, in places even precipitous, and is covered by granite scree, including very large boulders. An opening about ten feet square has been made in the zone, revealing some twenty inches below the solid granite a black formation, nine inches in thickness. The broken, altered granite continues below this formation, which although generally horizontal has, in the place exposed, a dip of 8° to the south-east. (Storey's Creek, here, is running approximately south.)

This black formation, although appearing as a distinct band in the fractured granite, is not a true lode but rather an aggregation of sulphide and other minerals in an altered zone of the granite. The fracture zone in the granite has served as a passage-way for the siliceous and sulphide solutions which, apparently, in their final phases, were rich in uranium oxide. The black material appears to consist of quartz, sulphides (mainly pyrite), fluorite and uranium minerals, contained in a ground mass of fine grained quartz-sericite. A description by G. Everard of a thin section of this material is appended.

On the 16th February, in company with Messrs. Ostle and Taylor of the United Kingdom Atomic Energy Authority, I again visited this prospect. Mr. Ostle identified some material in the black formation as pitchblende and this was later confirmed by X-ray powder photographs. Samples were taken for determination of the

uranium content by the Bureau of Mineral Resources, but the results of these are not yet to hand. However, samples forwarded by Dr. Loftus Hills, a member of the syndicate, were assayed chemically by the Tasmanian Mines Department and showed a uranium content of 2.91 per cent and 1.78 per cent.

This later development at the prospect now shows that some concentration of uranium minerals does occur and the next stage in the development is—

- (1) to prove some lateral extent of the black formation;
- (2) to work through the fracture zone and determine if there is any duplication of this nine inches of black formation;
- (3) to examine other fracture zones apparent along the creek bed.

Whether this prospect does become an ore producer or not, attention should be drawn to the following facts:—

1. This is the first authentic record of a primary uranium mineral occurring in Tasmania.
2. The percentage of uranium oxide is much higher than any yet found in this State.

APPENDIX BY G. EVERARD

The specimen, similar to those previously described from these workings, is weathered and shows strong rock cleavage. Oxidised radio-active minerals and also a somewhat crumbly black substance which is seen on close inspection to consist of sulphides, mainly pyrite, are visible in hand specimens.

Silicate minerals observed in thin section include quartz in clear colourless crystals, partly euhedral, with lines of bubbles and minute inclusions, biotite of pale yellowish-brown colour, and a ground mass of quart-sericite mosaic. Some areas of the ground mass show a regular lineal arrangement of the quartz and sericite grains and are relicts of felspar crystals. The quartz grains may show corrosion and euhedral grains may be partly enclosed by biotite.

Sulphides, mainly pyrite but including a very small amount of galena and sphalerite, are scattered through the rock as euhedral crystals, grains and irregular masses. A black mineral is associated with pyrite and frequently encloses small grains. It also occurs as skeletal crystals, almost dendritic in form, and as strings of minute grains and in the interstices between grains of quartz. A little fluorite is also associated with the black mineral.

While it is difficult to separate any portion of the rock, other than quartz fragments, which will not give a fluorescent sodium fluoride bead in ultra-violet light, beads containing the black mineral are so much more strongly fluorescent that the radio-activity of the rock must be peculiarly associated with it.

Secondary radio-active minerals are present and may account for the peculiar yellow-orange colour of the rock. This colour may be partly due to iron however, as the proportion of sulphur from analysis is not sufficient to convert all iron, lead and zinc to sulphides.

The black mineral is evidently a primary uranium mineral introduced after the sulphides, at the hydrothermal stage of mineralisation.